Birds of the cold tropics: Dokfuma, Star Mountains, New Guinea

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Introduction

Altitude is the most important ecological sorting mechanism acting upon the New Guinean avifauna (Diamond 1972). It is surprising, therefore, that relatively little has been published about the birds occurring at very high altitudes in alpine and subalpine habitats (Smith 1980). High-altitude bird communities are known to be depauperate (Diamond 1972), but are of particular interest because they occur in highly discontinuous habitats which harbour relictual populations of several species. The low diversity of these communities is reflected in very coarse niche differences between taxa; the few species in any high-altitude avian community generally belong to different genera or even families (Diamond 1972). Indeed, hitherto, no more than two congeners were definitely known to coexist at the same altitude above 2000 m. This contrasts with the situation below 1000 m where 4 to 8 congeners may exist in sympatry.

Dokfuma is a subalpine herbfield situated on the southern slopes of Mount Capella in the Star Mountains (5°01′S, 141°07′E) in the West Sepik Province at an altitude of 3200 m. The herbfield has developed in a frost hollow with gentle slopes and is approximately two square kilometres in area. The valley floor is covered by a dense mat of ferns, with small stands of tree ferns and stunted *Rhododendron* shrubs. The margins of the valley support an open *Dacrycarpus* woodland. *Phyllocladus, Papuacedrus* and *Schefflera* are common in this woodland. In sheltered areas there are stands of dense, extremely mossy, Upper Montane Forest (Paijmans 1976). The region is uninhabited by humans but is crossed by the Busilmin-Tabubil walking trail.

Despite extensive early field work on birds in the Snow Mountains (Archbold *et al.* 1942) and the Victor Emmanuel and Hindenberg Ranges (Gilliard & LeCroy 1960) no ornithologist appears to have visited Dokfuma. The area was visited in April 1987 by a team of mammalogists and herpetologists from the Australian Museum (Flannery 1987) who made opportunistic observations on birds and reported MacGregor's Bird of Paradise *Macgregoria pulchra* and the Western Alpine Mannikin *Lonchura montana*, the latter for the first time in Papua New Guinea.

Dokfuma is of particular ornithological interest as it is close to the eastern limit of several bird species known to occur in nearby Irian Jaya, but not yet known from Papua New Guinea (Beehler *et al.* 1986, Coates 1990). Furthermore, the only locality at which more than two high-altitude congeneric species have been reported to occur in sympatry is on the northern slopes of the Snow Mountains (Diamond 1972). If three congeners do occur together in the Snow Mountains, one might expect this situation at Dokfuma also, for reasons of geographic proximity.

We visited Dokfuma between 16 and 19 November 1991 and camped at the same site as the 1987 Australian Museum expedition (GR158463, Ok Tedi 1:100,000 map sheet 7187). During our stay weather conditions varied from complete fog to a clear sky. Temperatures varied from 1°C at night to 18°C by day. This paper outlines our observations on the birds of the area based on 45 hours of observations by two observers.

Systematic list

SNIPE *Gallinago* sp.

Six snipe were flushed from a patch of long grass in the valley on 17 November. They were still present on 18 November. A *scaap* call was given. This was the only migratory bird seen at Dokfuma and appeared to be same as the snipe seen in Tabubil a few days prior to our visit to Dokfuma. This is presumably Swinhoe's Snipe *G. megala*.

WHISKERED LORIKEET *Oreopsittacus arfaki*

A flock of three flew overhead at the northern end of the valley on 16 November. Quiet *tsit* calls revealed 4 birds feeding in a fruiting *Schefflera* sp. on the afternoon of 17 November. Two flew over a waterfall at the west end of the valley on the 18th.

FAN-TAILED CUCKOO *Cacomantis flabelliformis*

Heard calling daily. One observed on 17 November.

MOUNTAIN SWIFTLET *Collocalia hirundinacea*

Frequently seen over the open herbfields. Assumed to be this species on the basis of altitude.

GLOSSY SWIFTLET *Collocalia esculenta*

Frequently seen over the shallow tree-lined gullies which ran into Dokfuma herbfield.

ALPINE PIPIT *Anthus gutturalis*

A pair of birds building a nest in the valley; carrying grass strands into longish grass. Perched on tree ferns, and often foraged down in their flat crowns. Observed in the company of Western Alpine Mannikins on several occasions.

HOODED CUCKOO-SHRIKE *Coracina longicauda*

A pair of birds were observed to fly across a shallow gully at the northern end of the valley and alight on the edge of the open woodland.

ISLAND THRUSH *Turdus poliocephalus*

Adults were frequently observed along the forest edge. A juvenile bird was observed on western edge of the valley on 16 November.

NEW GUINEA THORNBILL *Acanthiza murina*

A very inquisitive species which investigated 'squeaking' and gave excellent views. Several were seen either in small flocks or in pairs, giving

a noisy, high-pitched, sibilant twittering call; also a buzzy, high-pitched *chwee shtup shtup* song from mid canopy.

DIMORPHIC FANTAIL *Rhipidura brachyrhyncha*

A pair observed in association with Lorentz's Whistlers on 17 November at the northern end of the valley in moss forest at the edge of a deep doline (sink-hole). A female in scrub forest behind camp on the same date.

MOUNTAIN ROBIN *Petroica bivittata*

Two small black and white robins with a high-pitched *see-see-see-see* call, perching high in trees. White underparts; black chin and throat. One individual seemed to have a black chin, whereas the other had black on throat as well. Black above with a small white wing-bar. One bird may have had a tiny white loral spot, the other lacked it. A considerable range extension, filling an apparent gap between Snow Mountains and central highlands populations.

LORENTZ'S WHISTLER *Pachycephala lorentzi*

Two birds on forest edge in late afternoon on 16 November. One individual with grey head, olive mantle, whitish chin, throat and chest, greyish belly and a pale yellow undertail area only. This bird appeared to be an immature, and was associated with a second, clearly an adult with grey head, white chin, throat and chest with greyish pectoral band; olive green mantle, wings and tail; underparts rich yellow; bill small, fine, dark; eyes and legs dark. Another pair of adults in open forest at the western edge of the valley on 16 November. Quite tame, responded well to 'squeaking'; rather robin-like. A group of three observed on the 17th at the northern end of the valley in moss forest on the edge of a doline. One of these was an immature with similar coloration to that described above. The presumed immature plumage is not listed in either Coates (1990) or Beehler *et al.* (1986). Occurred in the mid stratum of moss forest or tops of saplings in clearings.

BLACK SITTELLA *Daphoenositta miranda*

A noisy twittering flock of 15 low down in bushes on 17 November. Female with dull, pinky-red forehead, chin and undertail; eyes and legs yellow. A pair observed on the 18th in a gully to the east of camp, high in a tree. Another flock of five birds flew from low vegetation (2 m) high into the canopy of a tree on the 18th.

CRESTED BERRYPECKER *Paramythia montium*

This species proved to be quite common, skulking around in bushes, and was generally fairly confiding. Call a nasal *zek*. One was observed high in trees from camp on most days.

RED-COLLARED MYZOMELA *Myzomela rosenbergii*

Two males observed on 17 November, and three males on the 18th. A single bird called continuously from an exposed branch east of camp on the 18th, a very high-pitched, prolonged *tsi*. A noisy, canopy frequenting species.

BLACK-THROATED HONEYEATER *Lichenostomus subfrenatus*

The most conspicuous species found at Dokfuma, calling and singing noisily. Adults were observed feeding fledglings on 16 November. Individual birds appeared to have two main calls. The one most often uttered was a complicated, tuneful series of whistles, which could be heard from some distance away. While feeding young or disturbed by observers a harsh churring sound was produced. A noisy, bubbling song, rising and falling in pitch, was often given by several birds together. Loud, harsh *wit* calls were given when near the juvenile.

SOOTY MELIDECTES *Melidectes fuscus*

A blackish melidectes in undergrowth, lacking a beard; tail not cocked; not mottled beneath, and had a blueish-white patch behind the eye, which was more extensive than that of *M. nouhuysi*. Two individuals seen on 17 November.

SHORT-BEARDED MELIDECTES *Melidectes nouhuysi*

Not uncommon along forest margins, low down in fringing vegetation. A large blackish honeyeater with a long slightly down-curved, dark bill, rather longer than shown by Beehler *et al.* (1986) and a prominent, forked, white beard, often standing out from neck, not reaching anywhere near the bend of the wing. Mottled paler on belly and under tail; small, golden yellow skin patch behind eye. Tail often flicked-up at 45 degrees. Keeping to bushy scrub mostly. Call a metallic *pwik* and a thin *weet-weet* flight-note. Chased by the smaller, more aggressive Black-throated Honeyeater right up into the canopy on one occasion.

BELFORD'S MELIDECTES *Melidectes belfordi*

A noisy melidectes heard calling at the southern end of the herbfield was presumably Belford's at this altitude.

WESTERN ALPINE MANNIKIN *Lonchura montana*

Eight adults near an old camp on the western side of the valley, and two later sightings each of two adults further down the meadow. Fairly tame. Often seemed to be found with the Alpine Pipit. Call a monotonous *tyu* series.

MOUNTAIN FIRETAIL *Oreostruthus fuliginosus*

A female above the old camp on the western side of the valley on 17 November was the sole sighting.

MACGREGOR'S BIRD OF PARADISE *Macgregoria pulchra*

At least one pair was seen on several occasions in forest at the southern end of the valley. They seemed to have a territory about 1 km long and a few hundred metres wide, as they continually flew up a ridge then came over the top and back down onto lower slopes. On one occasion one of this pair chased another, third individual from this area. Wing noise in flight was reminiscent of a duck at close range and was audible over a distance of several hundred metres. Strange *nyeh nyeh nyeh* call. Observed several times with green berries in bill. Legs whitish and stood out from black of

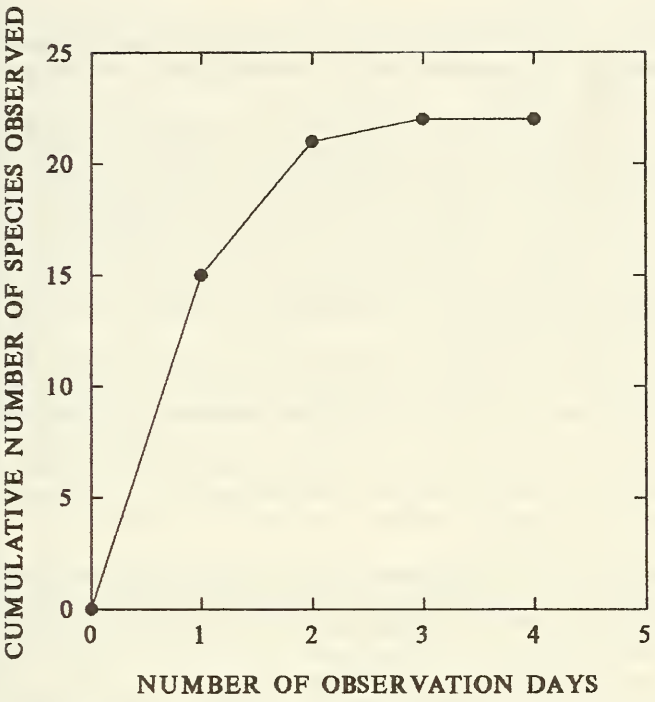

Figure 1. Cumulative number of bird species observed over a four-day period at Dokfuma, West Sepik Province, Papua New Guinea.

body, unlike illustrations (Beehler *et al.* 1986, Plate 54). The facial wattle of one bird was brilliant sunset orange on one day. On the following day a bird was observed with an intense, but duller, yellow facial wattle. We suspect that this variation may have occurred in one individual, in which case it may be analogous to the colour changes in the facial wattle of the Smoky Honeyeater *Melipotes fumigatus*, and requires further observation.

Discussion

A total of 22 species of birds in 16 families were observed or heard over four days at Dokfuma. While there are some species which might be expected to occur at this locality but were not observed (e.g. Archbold's Owlet Nightjar *Aegotheles archboldi*), this figure compares well with the complexity of bird communities found in other areas of high altitude in eastern Papua New Guinea (Diamond 1972, Beehler *et al.* 1987). A plot of the cumulative number of species observed over the four days shows a distinct plateau, suggesting that this list is reasonably complete (Fig. 1).

Most families were represented by one species at Dokfuma. This pattern of taxonomic diversity presumably reflects the coarse pattern of

niche difference found in other high-altitude bird communities (Diamond 1972). The notable exception to this was the five species of honeyeaters (Meliphagidae). This reflects the enormous radiation of this family in the Australopapuan region.

The Red-collared Myzomela *Myzomela rosenbergii* and Black-throated Honeyeater *Lichenostomus subfrenatus* are widespread high-altitude forms and were not unexpected at Dokfuma. The co-existence of three species of *Melidectes*, which are all of similar size (Beehler *et al.* 1986), is of special interest. It confirms that more than two species within this genus can live in sympatry at high altitude. This has been reported only once previously, from the Snow Mountains in Irian Jaya, and is contrary to the general pattern that only two species occur together over most of New Guinea (Diamond 1972).

The occurrence of the Short-bearded Melidectes *Melidectes nouhuysi* at Dokfuma is particularly noteworthy as it is the first record of this species from Papua New Guinea. Previously *M. nouhuysi* was known only from the Snow Mountains. The birds observed at Dokfuma had a slightly longer 'beard' than illustrated for this species by Beehler *et al.* (1986). The possibility, therefore, exists that this population represents a form intermediate between *M. nouhuysi* and the closely related Long-bearded Melidectes *M. princeps*.

Flannery & Seri (1990) noted that the Upper Montane mammalian fauna in the West Sepik Province contains many species distributed in western New Guinea, all of which have closely related populations to the east. This pattern occurs among some of the birds found at Dokfuma, viz. Mountain Robin *Petroica bivittata*, MacGregor's Bird of Paradise *Macgregoria pulchra*, Western Alpine Mannikin *Lonchura montana* and Short-bearded Melidectes *Melidectes nouhuysi*. The occurrence of these species at Dokfuma reduces the distance isolating the eastern and western populations or species pairs. One clear inference from this is that more survey work between the Dokfuma-Telefomin area and Mount Hagen is needed to determine whether there are populations of high-altitude bird species linking eastern highlands populations with those of the Star and Snow Mountains.

Summary

Twenty-two species of bird are listed as occurring at Dokfuma, a subalpine herbfield in West Sepik Province, Papua New Guinea, at an altitude of 3200 m. One of these, *Melidectes nouhuysi*, is reported from Papua New Guinea for the first time. Three species of *Melidectes* occur in sympatry at Dokfuma, whereas only two species of this genus occur together in most high altitude habitats. The occurrence of several species at Dokfuma reduces the distance between closely related populations, previously known from the Snow Mountains in Irian Jaya, to the west, and the eastern highlands of Papua New Guinea.

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Some records of birds from Belize, Central America, including three first records

by R. Walters

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Russell's (1964) monograph has for many years been the standard work on the avifauna of Belize, formally British Honduras. Further information is contained in Barlow *et al.* (1969, 1970, 1972), Erickson (1977), Kiff & Kiff (1974) and Wood & Leberman (1987). An annotated checklist (Scott Wood *et al.* 1986) gives brief distributional and abundance details of all species known to have occurred in Belize up to the end of 1985.

Whilst researching the history of banding in Belize, I also found several significant records, which pre-date the checklist. I found a later occurrence of one species, which I repeat here as the publication in which it is recorded has a limited distribution. Except where stated, all instances of banding were carried out by W. P. Nickell. Nickell was an experienced bander, with considerable experience in the northern Neotropics. He took part in six expeditions to Belize between 1960 and 1965 (Nickell 1968).

To eliminate the possibility of input error, all computer records were verified against the original banding schedules. Sequence and nomenclature follow A. O. U. (1983).

NORTHERN PYGMY-OWL *Glaucidium gnoma*

This species is not listed by Russell (1964) or Scott Wood *et al.* (1986). A single individual of this species was banded at San Antonio, Cayo District, on 24 February 1960. On 8 March 1986, a Royal Air Force